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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,806	09/07/2004	Yoshihisa Saimoto	018765-177	5415

21839 7590 06/02/2005

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EXAMINER

MAGEE, THOMAS J

ART UNIT PAPER NUMBER

2811

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/506,806

Applicant(s)

SAIMOTO ET AL.

Examiner

Thomas J. Magee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09072004:05052005</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections – 35 U.S.C. 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagai et al. (US 6,114,753).

3. Regarding Claims 1 and 2, Nagai et al. disclose a surface protecting adhesive film for a semiconductor wafer, wherein the adhesive layer exhibits a modulus of elasticity of 1.0 Mpa at a temperature in the range, 200 to 250 degrees C (Col. 8, lines 45 – 47) and a thickness of approximately 50 μm (Col. 9, lines 53 – 58) formed on both surfaces of a base film (polyimide). Nagai et al. do not explicitly disclose a melting point of at least 200 degrees C. However, Nagai et al. disclose that the tape was “cured” at 200 degrees C for one minute on the semiconductor element (Col. 9, lines 62 – 67). It is therefore inherent that the melting point is at least 200 degrees C or higher.

Claim Rejections – 35 U.S.C. 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obvious-

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ness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takyu et al. (US 6,699,774 B2).in view of Inuzuka (US 6,777,310 B2) and Nagai et al.

5. Regarding Claims 3 and 4, Takyu et al. disclose a protecting method for a semiconductor wafer in a step of processing a non-circuit formed surface of the semiconductor wafer comprising a first step of fixing a circuit formed surface of the semiconductor wafer to a substrate (18) (Figure 14A) supporting the semiconductor wafer (11) via a surface protecting adhesive film (17), a second step of fixing a non-circuit formed surface of the semiconductor wafer on a semiconductor wafer grinding machine (19) (Figure 15A) (Col. 5, lines 52 – 54) and mechanically grinding the non-circuit formed surface of the semiconductor wafer.

Takyu et al. does not disclose a surface protecting adhesive film with storage elastic modulus of 1 Mpa at 150 degrees C and a thickness of from 3 to 100 um formed on both a surface and back surface of a base film of thickness of 10 to 200 um having a melting point of at least 200 degrees C. Nagai et al. disclose a surface protecting adhesive film for a semiconductor wafer, wherein the adhesive layer exhibits a modulus of elasticity of 1.0 Mpa at a temperature in the range, 200 to 250 degrees C (Col. 8, lines 45 – 47) and a thickness of approximately 50 um (Col. 9, lines 53 – 58) formed on both surfaces of a base film (polyimide).with a melting point

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of at least 200 degrees C, as discussed above. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Nagai et al. with Takyu et al. to obtain a tape material for superior mass productivity (Nagai et al., Col. 8, lines 50 – 52).

Takyu et al. do not disclose the step of removing the damaged layer generated on the non-circuit formed surface of the semiconductor wafer, wherein the surface protecting adhesive film recited in Claim 1 is used to protect the surface. Inuzuka discloses that the damaged layer is removed by etching (Col. 3, lines 5 – 11) and that a tape (102) (Figure 2A) protects the circuit formed surface of wafer 100 during etching. As discussed in the preceding paragraph, Takyu et al. do not disclose a surface protecting adhesive film as recited in Claim 1. Nagai et al. disclose a film with the properties discussed in the paragraph above.


It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Inuzuka, Nagai et al. and Takyu to protect the device surface and remove deleterious defects in the ground layer that will influence reliability.

Conclusions

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Thomas Magee**, whose telephone number is **(571) 272 1658**. The Examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM (EST). If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor,

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Eddie Lee, can be reached on **(571) 272-1732**. The fax number for the organization where this application or proceeding is assigned is **(703) 872-9306**.



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Thomas Magee
May 22, 2005